Extended Simple Mail Transfer Protocol (ESMTP) Accounting in Store and Forward Fax

This feature module contains information about how to implement specialized accounting services in Store and Forward Fax using Extended Simple Mail Transfer Protocol (ESMTP).

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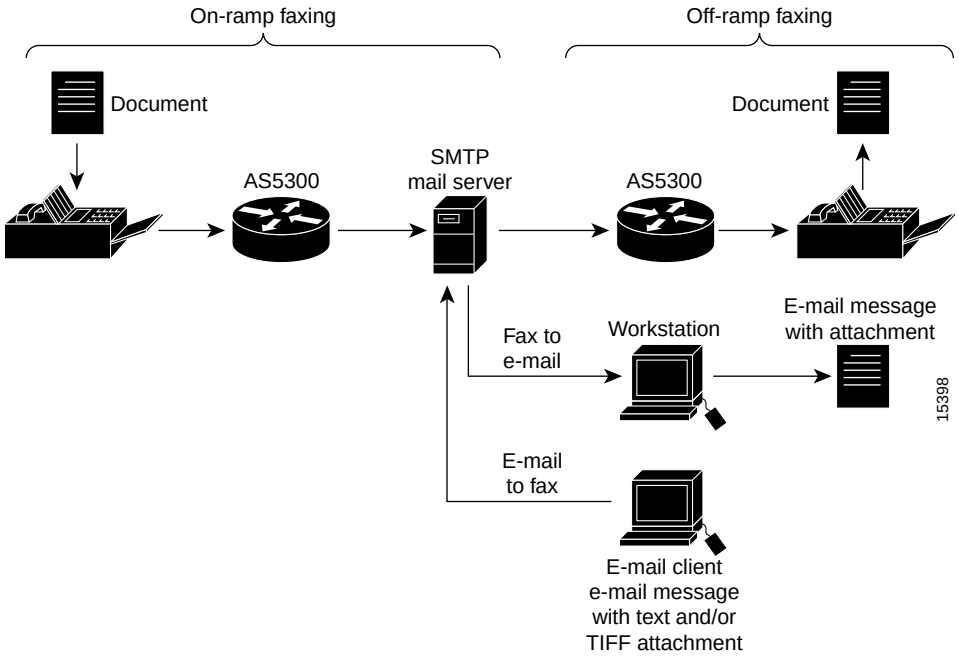
Feature Overview

Store and Forward Fax enables Cisco AS5300 access servers to send and receive faxes across packet-based networks. With Store and Forward Fax, the Cisco AS5300, acting as the on-ramp gateway, receives faxes from end users and converts them into TIFF files. It then creates a standard Multipurpose Internet Mail Extensions (MIME) e-mail message and attaches the TIFF file to it. The on-ramp gateway then forwards this “fax-mail” to the messaging infrastructure of a designated SMTP server, where the fax-mail message is stored. The messaging infrastructure performs message routing, message storage, and transport, and can be either a standard Internet Mail Transport Agent (MTA)—for example, UNIX sendmail—or custom store-and forward fax software. The responsibility of delivering the fax-mail message falls to SMTP and the mail server.

After the fax-mail is stored on the SMTP server, it can be delivered either as an e-mail message with attachment when the recipient downloads messages or as a standard fax to a Group 3 fax device. In the latter case, the SMTP server mail delivery infrastructure delivers the fax-mail to the Cisco AS5300 acting as an off-ramp gateway. The off-ramp router converts the attached TIFF file back into standard fax format and then sends the information to a standard Group 3 fax device. The off-ramp gateway is also responsible for generating delivery status notifications (DSNs) and message disposition notifications (MDNs).

Figure 1 shows a simple network topology using Store and Forward Fax.

Figure 1 Topology Showing Store and Forward Fax Functionality



Store and Forward Fax functionality is facilitated through Simple Mail Transfer Protocol (SMTP). Additional functionality is provided in this product to provide confirmed delivery using existing SMTP mechanisms (such as ESMTP) for those features.

In Store and Forward Fax, you can collect accounting information about fax services in two ways:

- Using RADIUS accounting. (For more information about using RADIUS to generate accounting data, see Cisco IOS Release 12.0(4)XJ *Store and Forward Fax*.)
- Collecting the accounting information using SMTP

The ESMTP Accounting in Store and Forward Fax feature enables you to collect accounting information about fax services as part of the SMTP session. This functionality is activated through the use of an intelligent fax client or MTA. In ESMTP accounting, the off-ramp gateway (acting in its capacity as an ESMTP server) advertises capabilities to the MTA, which is acting as an e-mail client. One of the capabilities the off-ramp gateway advertises is xaccounting, which means that it supports ESMTP accounting. If the MTA recognizes the xaccounting service extension, the MTA (acting as the client) can accept the ESMTP accounting information sent from the off-ramp gateway. If the MTA does not recognize the xaccounting service extension, it will not send the **xact** command to the off-ramp gateway. In that case, the off-ramp gateway will not respond with ESMTP accounting data.

To use SMTP to collect accounting data, then, you must configure the MTA to explicitly request accounting information as part of the e-mail session—meaning that you must program the MTA to do the following:

- Recognize the xaccounting service extension during the extended hello (ehlo) transaction
- Send the **xact** command to the off-ramp gateway to activate the ESMTP accounting feature

You need not configure any commands on the Cisco AS5300 to enable ESMTP accounting.

In the following example, ESMTP accounting is manually activated via a Telnet session. The output from the MTA is in **bold**; the output from the off-ramp Cisco AS5300 is in *italics*.

Note In this particular example, the fax call was placed using a Microcom modem.

```
telnet 172.14.120.2 25
Trying 172.14.120.2...
Connected to 1.14.120.2.
Escape character is '^]'.
220 mmoip-b.cisco.com Cisco NetWorks ESMTP server
ehlo anyserver.com
250-mmoip-b.cisco.com, hello anyserver.com [223.255.254.10] (really)
250-ENHANCEDSTATUSCODES
250-8BITMIME
250-PIPELINING
250-HELP
250-DSN
250-XSESSION
250 XACCOUNTING
mail from:<>
250 2.5.0 Sender <> ok
rcpt to:<FAX=+1408555-7442@cisco.com>
250 2.1.5 Recipient <FAX=+1408555-7442@cisco.com> ok, maps to '5557442' (cp=yes)
xact
250 2.5.0 XACCOUNTING enabled
data
354 Enter mail, end with a single "."

Testing 1 2 3
Testing 1 2 3
Testing 1 2 3
Testing 1 2 3
Testing 1 2 3
Testing 1 2 3
Testing 1 2 3
.
```

The following example shows the accounting information sent to the SMTP server from the off-ramp gateway when the fax transmission is successful:

```
250-2.5.0 Message delivered to remote fax machine
250-2.5.0 fax_modem_time = 32/41
250-2.5.0 fax_pages = 2
250-2.5.0 gateway_id = mmoip-b.cisco.com
250-2.5.0 fax_connect_speed = 14400bps
250-2.5.0 transmit_bytes = 16870
250-2.5.0 port_used = slot:1 port:2
250-2.5.0 call_type = Fax Send
250-2.5.0 abort_cause = 0
250-2.5.0 T30_error_code = 0
250-2.5.0 ISDN_disconnect_code = 16
250 2.5.0 CSID =555-7442
```

The following example shows the accounting information sent to the SMTP server from the off-ramp gateway when the fax transmission is unsuccessful. In this particular example, the fax transmission was unsuccessful because the line was busy.

```
450-4.3.2 Modem busy
450-4.3.2 fax_modem_time = 0/59
450-4.3.2 fax_pages = 0
450-4.3.2 gateway_id = mmoip-b.cisco.com
450-4.3.2 fax_connect_speed = 2400bps
450-4.3.2 transmit_bytes = 0
450-4.3.2 port_used = slot:1 port:3
450-4.3.2 call_type = Fax Send
450-4.3.2 abort_cause = 1
450-4.3.2 T30_error_code = 11
450-4.3.2 ISDN_disconnect_code = 17
450 4.3.2 CSID =
```

Table 1 explains the example communication between the MTA and the Cisco AS5300 off-ramp gateway:

Table 1 Communication between the MTA and the Off-Ramp Cisco AS5300 Access Server

Mail Transport Agent	Off-Ramp Cisco AS5300	Description
telnet 172.14.120.2 25 Trying 172.14.120.2...		The Telnet connection to the off-ramp Cisco AS5300 is established.
	Connected to 1.14.120.2. *Escape character is '^]'.* *220 mmoip-b.cisco.com Cisco NetWorks ESMTP server*	The off-ramp responds to the ESMTP server.
ehlo anyserver.com		Extended hello—the MTA requests capability information from the off-ramp Cisco AS5300.

Table 1 Communication between the MTA and the Off-Ramp Cisco AS5300 Access Server (continued)

Mail Transport Agent	Off-Ramp Cisco AS5300	Description
	250-mmoip-b.cisco.com, hello anyserver.com [223.255.254.10] (really) *250-ENHANCEDSTATUSCODES* *250-8BITMIME* *250-PIPELINING* *250-HELP* *250-DSN* *250-XSESSION* *250 XACCOUNTING*	The off-ramp gateway responds, advertising its capabilities. In this example, it provides its device name, its IP address, and a list of its capabilities. **Note** XACCOUNTING must be one of the enabled capabilities for ESMTP accounting to work.
mail from: < >		The sender is defined.
	250 2.5.0 Sender < > ok	The sender is acknowledged.
rcpt to:<FAX=+1408555-7442@cisco.com>		The recipient is defined.
	250 2.1.5 Recipient <FAX=+1408555-7442@cisco.com> ok, maps to '5557442' (cp=yes)	Recipient is acknowledged.
xact		The **xact** command is issued to enable ESMTP accounting.
	250 2.5.0 XACCOUTNING enabled	ESMTP accounting is enabled.
data		The MTA notifies the off-ramp gateway that the following information is the body text of the fax-mail message.
	354 Enter mail, end with a single ".”	The off-ramp gateway acknowledges the request to send data.
Testing 1 2 3 **Testing 1 2 3** **Testing 1 2 3** **Testing 1 2 3** **Testing 1 2 3** **Testing 1 2 3** **Testing 1 2 3**		The body of the fax-mail message is sent.
.		End of data.

Table 1 Communication between the MTA and the Off-Ramp Cisco AS5300 Access Server (continued)

Mail Transport Agent	Off-Ramp Cisco AS5300	Description
	250-2.5.0 Message delivered to remote fax machine *250-2.5.0 fax_modem_time = 32/41* *250-2.5.0 fax_pages = 2* *250-2.5.0 gateway_id = mmoip-b.cisco.com* *250-2.5.0 fax_connect_speed = 14400bps* *250-2.5.0 transmit_bytes = 16870* *250-2.5.0 port_used = slot:1 port:2* *250-2.5.0 call_type = Fax Send* *250-2.5.0 abort_cause = 0* *250-2.5.0 T30_error_code = 0* *250-2.5.0 ISDN_disconnect_code = 16* *250 2.5.0 CSID = 555-7442*	The off-ramp gateway sends the accounting data. These accounting fields are defined in Table 2.

Table 2 defines the ESMTP accounting information provided by the off-ramp Cisco AS5300.

Table 2 ESMTP Accounting Field Definitions

Accounting Field	Definition
fax_modem_time =	Indicates the amount of time in seconds the modem sent fax data (x) and the amount of time in seconds of the total fax session (y), which includes both fax-mail and Public Switched Telephone Network (PSTN) time, in the form x/y.
fax_pages =	Indicates the total number of faxed pages sent.
gateway_id =	Indicates the hostname.domain-name of the gateway.
fax_connect_speed =	Indicates the fax connection speed in bits per second (bps).
transmit_bytes =	Indicates the total number of bytes sent during the connection.
port_used =	Indicates the port over which this data was received.
call_type =	Indicates the type of call.
abort_cause =	Defines the internal gateway component that signaled that the fax transmission be aborted. Abort causes are defines as follows: • 0: No abort • 1: Fax application abort • 2: ESMTP abort • 3: TIF abort • 4: Text to fax process abort • 5: Authentication abort
T30_error_code =	Defines the standard applicable T.30 (Rockwell Class 2) error code, as defined in the T.30 specification. Table 4 lists the T.30 error codes.
ISDN_disconnect_code =	Defines the lists the applicable Q.931 (ISDN) call disconnection value. Table 5 lists the Q.931 call disconnection values.

Table 2 ESMTP Accounting Field Definitions (continued)

Accounting Field	Definition
CSID =	Indicates the called subscriber identification number, which is an identifier whose coding format contains the telephone number from the remote fax terminal.

Table 3 explains the ESMTP mail system status codes in the previous examples.

Table 3 ESMTP (RFC 821) Mail System Status Codes

SMTP Reply Code	Description
211	System status or system help reply.
214	Help message.
220	Service ready (domain).
221	Service closing transmission channel (domain).
250	Requested mail action okay; completed.
251	User not local; will forward to <forward path>.
354	Start mail input; end with <carriage return; line forward (CRLF)>.<CRLF>.
421	Service not available (domain); closing transmission channel.
450	Requested mail action not taken: mailbox unavailable (for example, mailbox busy).
451	Request action aborted. Error in processing.
452	Requested action not taken: insufficient system storage.
500	Syntax error, command unrecognized.
501	Syntax error in parameters or arguments.
502	Command not implemented.
503	Bad sequence of commands.
504	Command parameter not implemented.
550	Requested action not taken: mailbox unavailable (for example, mailbox not found).
551	User not local; please try <forward path>.
552	Requested mail action aborted: exceeded storage allocation.
553	Requested action not taken: mailbox name not allowed (for example, mailbox syntax incorrect).
554	Transaction failed.

Table 4 lists the T.30 (Rockwell Class 2) error codes used in the previous examples. Error code 0 indicates a normal connection.

Note Error codes are sometimes specific to the modem sending the fax-mail. If the error codes in your ESMTP accounting data differ from the ones listed here, refer to the hardware documentation that came with your modem for implementation of T.30 error codes for that modem.

Table 4 Supported T.30 (Rockwell Class 2) Error Codes

Number	Code
0	NORMAL_CONNECTION
1	RING_DETECT_NOCONNECT
2	USER_ABORT
3	NO_LOOP_CURRENT
4	AT_TIMEOUT
5	AT_ERROR
6	AT_NO_DIALTONE
7	AT_BUSY
8	AT_NO_CARRIER
10	PHASE_A_ERROR
11	NO_ANSWER_T30_TIMEOUT
20	TRANSMIT_PHASE_B_ERROR
21	REMOTE_CANNOT_RECEIVE_SEND
22	COMREC_ERR_TRANSMIT_PHASE_B
23	COMREC_INVALID_COMMAND
24	RSPEC_ERROR_B
25	DCS_NO_RESPONSE
26	DIS_DTC_RECEIVED_3_TIMES
27	FTT_2400
28	RSPREC_INVALID_RESPONSE_B
40	TRANSMIT_PHASE_C_ERROR
43	DTE_DCE_UNDERFLOW
50	TRANSIT_PHASE_D_ERROR
51	RSPREC_ERROR_D
52	NO_RESPONSE_MPS
53	INVALID_RESPONSE_MPS
54	NO_RESPONSE_EOP
55	INVALID_RESPONSE_EOP
56	NO_RESPONSE_EOM
57	INVALID_RESPONSE_EOM
58	UNABLE_CONTINUE
70	RECEIVE_PHASE_B_ERROR
71	RXSPREC_ERROR
72	COMREC_ERROR_RXB
73	T30_T2_TIMEOUT_PAGE
74	T30_T1_TIMEOUT_EOM
90	RECEIVE_PHASE_C_ERROR

Table 4 Supported T.30 (Rockwell Class 2) Error Codes (continued)

Number	Code
91	MISSING_EOL
92	UNUSED_CODE
93	DCE_TO_DTE_OVERFLOW
100	RECEIVE_PHASE_D_ERROR
101	RSPREC_INVALID_RESPONSE_RECEIVED_D
102	COMREC_INVALID_RESPONSE_RECEIVED_D
103	UNABLE_TO_CONTINUE_AFTER_PIN_PIP

Table 5 lists the applicable Q.931 (ISDN) call disconnection cause values. Error code 16 indicates a normal transmission.

Table 5 Supported Q.931 (ISDN) Call Disconnection Cause Values

Number	Code	Description
0	CC_CAUSE_UNINITIALIZED	The disconnect code was never set.
1	CC_CAUSE_UANUM	Unallocated (unassigned) number.
2	CC_CAUSE_NO_ROUTE_TO_TRANSIT_NETWORK	No route to specified transit network.
3	CC_CAUSE_NO_ROUTE	No route to destination.
4	CC_CAUSE_SEND_INTO_TONE	Send special information tone.
5	CC_CAUSE_MISDIALLED_TRUNK_PREFIX	Misdialled prefix trunk.
6	CC_CAUSE_CHANNEL_UNACCEPTABLE	Channel unacceptable.
7	CC_CAUSE_CALL AWARDED	Call awarded and being delivered in an established channel.
8	CC_CAUSE_PREEMPTION	Preemption.
9	CC_CAUSE_PREEMPTION_RESERVED	Preemption; circuit reserved for reuse.
16	CC_CAUSE_NORM	Normal call clearing.
17	CC_CAUSE_BUSY	User is busy.
18	CC_CAUSE_NORS	No user is responding.
19	CC_CAUSE_NOAN	No answer from user (user alerted).
20	CC-CAUSE_SUBSCRIBER_ABSENT	Subscriber is absent.
21	CC_CAUSE_REJECT	Call has been rejected.
22	CC_CAUSE_NUMBER_CHANGED	Number has been changed.
26	CC_CAUSE_NON_SELECTED_USER_CLEARING	Non selected user clearing.
27	CC_CAUSE_DESTINATION_OUT_OF_ORDER	Destination number is out of order.
28	CC_CAUSE_INVALID_NUMBER	Invalid number format (address is incomplete).
29	CC_CAUSE_FACILITY REJECTED	Facility rejected.
30	CC_CAUSE_RESPONSE_TO_STATUS_ENQUIRY	Response to STATUS ENQUIRY.

Table 5 Supported Q.931 (ISDN) Call Disconnection Cause Values (continued)

Number	Code	Description
31	CC_CAUSE_UNSP	Normal, unspecified.
34	CC_CAUSE_NO_CIRCUIT	No circuit or channel is available.
35	CC_CAUSE_REQUESTED_VPCI_VCI_NOT_AVAILABLE	No description is available.
36	CC_CAUSE_VPCI_VCI_ASSIGNMENT_FAILURE	No description is available.
37	CC_CAUSE_CELL_RATE_NOT_AVAILABLE	No description is available.
38	CC_CAUSE_NETWORK_OUT_OF_ORDER	Network is out of order.
39	CC_CAUSE_PERM_FRAME_MODE_OUT_OF_SERVICE	Permanent frame mode connection is out of service.
40	CC_CAUSE_PERM_FRAME_MODE_OPERATIONAL	Permanent frame mode is operational.
41	CC_CAUSE_TEMPORARY_FAILURE	Temporary failure.
42	CC_CAUSE_SWITCH_CONGESTION	Switching equipment congestion.
43	CC_CAUSE_ACCESS_INFO_DISCARDED	Access information has been discarded.
44	CC_CAUSE_NO_REQ_CIRCUIT	Requested circuit or channel is not available.
45	CC_CAUSE_NO_VPCI_VCI_AVAILABLE	No description is available.
46	CC_CAUSE_PRECEDENCE_CALL_BLOCKED	Precedence call blocked.
47	CC_CAUSE_NO_RESOURCE	Resource is unavailable; the reason is not specified.
49	CC_CAUSE_QOS_UNAVAILABLE	Quality of service is unavailable.
50	CC_CAUSE_FACILITY_NOT_SUBSCRIBED	Requested facility not subscribed.
53	CC_CAUSE_CUG_OUTGOING_CALLS_BARRED	Outgoing calls are barred within closed user groups (CUGs).
55	CC_CAUSE_CUG_INCOMING_CALLS_BARRED	Incoming calls are barred within CUGs.
57	CC_CAUSE_BEARER_CAPACITY_NOT_AUTHORIZED	Bearer capacity is not authorized.
58	CC_CAUSE_BEARER_CAPACITY_NOT_AVAILABLE	Bearer capacity is not available.
62	CC_CAUSE-INCONSISTENCY-IN-INFO-AND-CLASS	There is an inconsistency in designated outgoing access information and subscriber class.
63	CC_CAUSE_NOSV	Service or option is not available; the reason is not specified.
65	CC_CAUSE_BEARER_CAPACITY_NOT_IMPLEMENTED	Bearer capacity is not implemented.
66	CC_CAUSE_CHAN_TYPE_NOT_IMPLEMENTED	Channel type is not implemented.
69	CC_CAUSE_FACILITY_NOT_IMPLEMENTED	Requested facility is not implemented.
70	CC_CAUSE_RESTRICTED_DIGITAL_INFO_BC_ONLY	Only restricted digital information bearer capability is available.
79	CC_CAUSE_SERVICE_NOT_IMPLEMENTED	Service or option is not available; the reason is not specified.

Table 5 Supported Q.931 (ISDN) Call Disconnection Cause Values (continued)

Number	Code	Description
81	CC_CAUSE_INVALID_CALL_REF_VALUE	Invalid call reference value.
82	CC_CAUSE_CHANNEL_DOES_NOT_EXIST	Identified channel does not exist.
83	CC_CAUSE_CALL_EXISTS_CALL_ID_IN_USE	A suspended call exists but this call identity does not exist.
84	CC_CAUSE_CALL_ID_IN_USE	Call identity is in use.
85	CC_CAUSE_NO_CALL_SUSPENDED	No call has been suspended.
86	CC_CAUSE_CALL_CLEARED	Call having requested call identity has been cleared.
87	CC_CAUSE_USER_NOT_IN_CUG	User is not a member of CUG.
88	CC_CAUSE_INCOMPATIBLE_DESTINATION	Incompatible destination.
90	CC_CAUSE_NON_EXISTENT_CUG	Nonexistent CUG.
91	CC_CAUSE_INVALID_TRANSIT_NETWORK	Invalid transit network selection.
93	CC_CAUSE_AAL_PARMS_NOT_SUPPORTED	No description available.
95	CC_CAUSE_INVALID_MESSAGE	Invalid message; the reason is unspecified.
96	CC_CAUSE_MANDATORY_IE_MISSING	Mandatory information is missing.
97	CC_CAUSE_MESSAGE_TYPE_NOT_IMPLEMENTED	Message type is nonexistent or is not implemented.
98	CC_CAUSE_MESSAGE_TYPE_NOT_COMPATIBLE	Message type is not compatible with call state, nonexistent, or not implemented.
99	CC_CAUSE_IE_NOT_IMPLEMENTED	Information element or parameter is nonexistent or not implemented.
100	CC_CAUSE_INVALID_IE_CONTENTS	Contents of the information element are invalid.
101	CC_CAUSE_MESSAGE_IN_INCOM_CALL_STATE	Message is not compatible with call state.
102	CC_CAUSE_RECOVERY_ON_TIMER_EXPIRY	Recovery when the call timer expires.
103	CC_CAUSE_NON_IMPLEMENTED_PARAM_PASSED_ON	Parameter is non-existent or not implemented.
110	CC_CAUSE_UNRECOGNIZED_PARAM_MSG_DISCARDED	Message has an unrecognized parameter and has been discarded.
111	CC_CAUSE_PROTOCOL_ERROR	Protocol error; the specific error is not specified.
127	CC_CAUSE_INTERWORKING	Unspecified interworking.
128	CC_CAUSE_NEXT_NODE_UNREACHABLE	No description is available.
160	CC_CAUSE_DTL_TRANSIT_NOT_MY_NODE_ID	No description is available.

Benefits

The *ESMTP Accounting for Store and Forward Fax* feature gives you another way, other than using RADIUS attributes, to collect accounting data about fax transmissions.

Restrictions

Two modem cards are available for the Cisco AS5300: the Microcom modem card and the MICA modem card. Microcom modem cards support both on-ramp and off-ramp fax activities. At the present time, MICA modem cards are unidirectional and only support off-ramp faxing. On-ramp faxing using MICA modem cards will be supported in a later release.

Related Features and Technologies

The *ESMTP Accounting for Store and Forward Fax* feature module is an extension to the Cisco IOS Release 12.0(4)XJ2 *Store and Forward Fax* feature module. The *Store and Forward Fax* feature module is related to the existing Voice over IP feature, which is documented in the Cisco IOS Release 12.0 *Voice, Video, and Home Applications Configuration Guide* and in the Cisco IOS Release 12.0(3)T feature module, titled *Voice over IP for the Cisco AS5300*. In addition, Store and Forward Fax uses elements from authentication, authorization, and accounting (AAA) security services, supporting the use of the RADIUS security server protocol. Store and Forward Fax also supports the use of the TACACS+ security server protocol. AAA, RADIUS, and TACACS+ are documented in the Cisco IOS Release 12.0 *Security Configuration Guide*.

Related Documents

- Cisco IOS Release 12.0(5)XJ2 *Store and Forward Fax* feature module
- Cisco IOS Release 12.0 *Voice, Video, and Home Applications Configuration Guide*
- Cisco IOS Release 12.0 *Voice, Video, and Home Applications Command Reference*
- Cisco IOS Release 12.0 *Security Configuration Guide*
- Cisco IOS Release 12.0 *Security Command Reference*
- Cisco IOS Release 12.0(3)T *Voice over IP for the Cisco AS5300* feature module
- *Cisco AS5300 Universal Access Server Software Configuration Guide*
- *Cisco AS5300 Universal Access Server Module Installation Guide*
- IETF Draft document: draft-ietf-fax-smtp-session-04.txt *Immediate delivery*

Supported Platforms

The *ESMTP Accounting for Store and Forward Fax* feature is supported on the Cisco AS5300 access server.

Supported Standards, MIBs, and RFCs

Standards

None

MIBs

- MMOIP DIAL-CONTROL-MIB
- MODEM-MANAGEMENT-MIB

- CISCO-ANALOG-VOICE-IF-MIB
- CISCO-VOICE-DIAL-CONTROL-MIB
- CISCO-VOICE-IF-MIB

For descriptions of supported MIBs and how to use MIBs, see the Cisco MIB web site on CCO at http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml.

RFCs

- RFC 821, *Simple Mail Transfer Protocol*
- RFC 822, *Standard for the Format of ARPA Internet Text Messages*
- RFC 1652, *SMTP Service Extension for 8bit-MIME Transport*
- RFC 1869, *SMTP Service Extensions*
- RFC 1891, *SMTP Service Extension for Delivery Status Notifications*
- RFC 1892, *The Multipart/Report Content Type for the Reporting of Mail System Administrative Messages*
- RFC 1893, *Enhanced Mail System Status Codes*
- RFC 1894, *An Extensible Message Format for Delivery Status Notifications*
- RFC 1896, *The Text/Enriched MIME Content-Type*
- RFC 2034, *SMTP Service Extension for Returning Enhanced Error Codes*
- RFC 2045, *Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies*
- RFC 2046, *Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types*
- RFC 2047, *MIME (Multipurpose Internet Mail Extensions) Part Three: Message Header Extensions for Non-ASCII Text*
- RFC 2197, *SMTP Service Extension for Command Pipelining*
- RFC 2298, *An Extensible Message Format for Message Disposition Notifications*
- RFC 2301, *File Format for Internet Fax*
- RFC 2302, Tagged *Image File Format (TIFF)—Image/TIFF MIME Sub-Type Registration*
- RFC 2303, *Minimal PSTN Address Format in Internet Mail*
- RFC 2304, *Minimal Fax Address Format in Internet Mail*
- RFC 2305, *A Simple Mode of Fax Using Internet Mail*
- RFC 2532, *Extended Facsimile Using Internet Mail*

Store and Forward Fax is also compliant with the SMTP requirements in RFC 1123, *Requirements for Internet Hosts—Application and Support*.

Prerequisites

You must have Store and Forward Fax configured to use ESMTP accounting. For more information about configuring Store and Forward Fax, refer to the Cisco IOS Release 12.0(4)XJ feature module titled *Store and Forward Fax*.

Configuration Tasks

There are no configuration tasks for the Cisco AS5300 associated with this feature.

Configuration Examples

There are no configuration examples for the Cisco AS5300 associated with this feature.

Command Reference

There are no new or modified commands associated with this feature.

Glossary

ANI—automatic number identification. Feature of Signaling System 7 (SS7) in which a series of digits, either analog or digital, are included in the call, identifying the telephone number of the calling device. In other words, ANI identifies the number of the calling party.

call leg—a discrete segment of a call connection.

CSI—called subscriber identification. An identifier whose coding format contains the telephone number from the remote fax terminal.

DID—direct inward dial. Feature that allows a user outside a company to dial an internal extension number without having to pass through an operator or attendant. The dialed digits are passed to the PBX, which then completes the call.

DNIS—dialed number identification service. Feature of trunk lines where the called number is identified; this called number information is used to route the call to the appropriate service.

DSN—delivery status notification. Message returned to the originator indicating the delivery status of an e-mail message. There are three types of delivery status notifications that can be requested by a sender: delay, success, and failure. Specifications for DSN are described in RFC 1891, RFC 1892, RFC 1893, and RFC 1894.

E.164—ITU-T recommendation for international telecommunication numbering.

ESMTP—Extended Simple Mail Transfer Protocol. Extended version of the Simple Mail Transfer Protocol (SMTP), which includes additional functionality such as delivery notification and session delivery. ESMTP is described in RFC 1869.

Group 3—standard created by the International Telecommunication Union Telecommunication standardization sector (ITU-T) relating to fax devices. A Group 3 fax device is a digital machine containing a 14400-baud modem that can send an 8.5 by 11 inch page in approximately 20 seconds with a resolution of either 203 by 98 dots per inch (dpi) or 203 by 196 dpi (fine), using Huffman code to compress fax data. Group 3 faxes use a standard dialup telephone line for transmission.

LCD—liquid crystal display. An alphanumeric display on computers and fax devices using liquid crystal sealed between two pieces of glass.

MDN—message disposition notification. Message returned to the originator of an e-mail message indicating that the e-mail message has been opened. Specifications for MDN are described in RFC 2298.

MICA—modem ISDN channel aggregation. Modem module and card used in the Cisco AS5300 universal access servers. A MICA modem provides an interface between an incoming or outgoing digital call and an ISDN telephone line; the call need not be converted to analog as it does with a conventional modem and an analog telephone line. Each line can accommodate, or aggregate, up to 24 (T1) or 30 (E1) calls.

MIME—Multipurpose Internet Mail Extension. MIME is the standard for sending non text data (or data that cannot be represented in plain ASCII code) in Internet mail, such as binary, foreign language text (such as Russian or Chinese), audio, or video data. MIME is defined in RFC 2045.

MMoIP—Multimedia Mail over Internet Protocol. Dial peer specific to Store and Forward Fax. The MMoIP dial peer is the vehicle you use to assign particular line characteristics (such as a destination telephone number) to the connection between the Cisco AS5300 access server and the SMTP mail server during on-ramp faxing.

MTA—Mail Transfer Agent. Software that implements SMTP and provides storage for mail messages to be forwarded or delivered to a local user. MTAs implement SMTP (RFC 821).

POTS dial peer—"Plain old telephone service" dial peer used as a vehicle to assign particular line characteristics to the connection between the user and the receiving Cisco AS5300 during inbound (or on-ramp) faxing and to the connection between the Cisco AS5300 access server and the receiving fax device during outbound (or off-ramp) faxing.

redialer—interface hardware device that interconnects between a fax device and a Public Switched Telephone Network (PSTN) network. A redialer is used to forward a dialed number to another destination. Redialers contain a database of referral telephone numbers. When the user dials a specific number, the redialer collects the dialed digits and matches them to a listing in its database. If there is a match, the redialer dials the referral number (transparent to the user) and forwards the call to the referral number.

SMTP—Simple Mail Transfer Protocol. Application-level protocol in the TCP/IP protocol suite involved with the transmission and reception of electronic mail. Specifications for SMTP are described in RFC 821 and RFC 822.

store and forward—function whereby a message is transmitted to some intermediate relay point and temporarily stored before forwarding to the next relay point.

TSI—transmitting subscriber information. A frame that can be sent by the caller with the telephone number of the caller that can be used to screen calls.